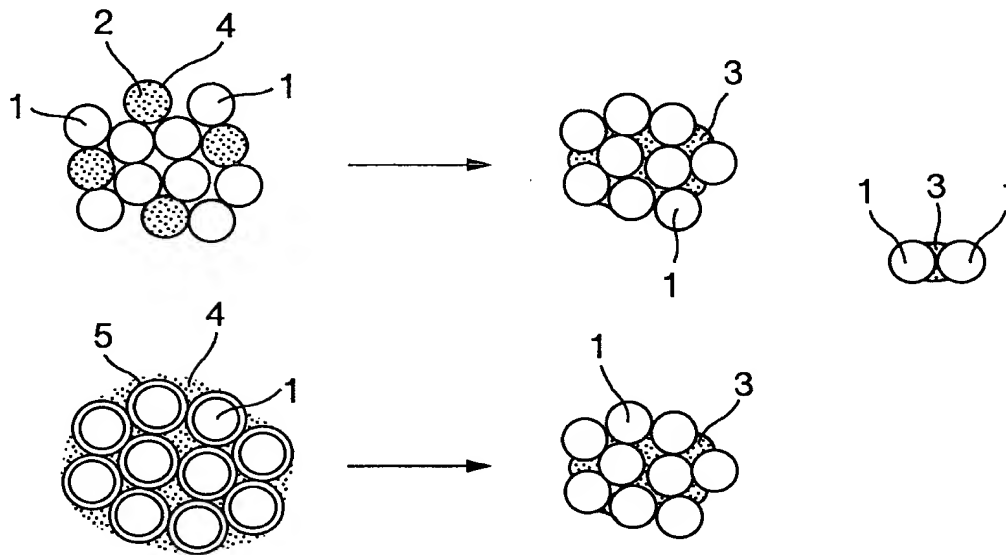


FIG. 1



Applicant: Tasao Soga, et al.

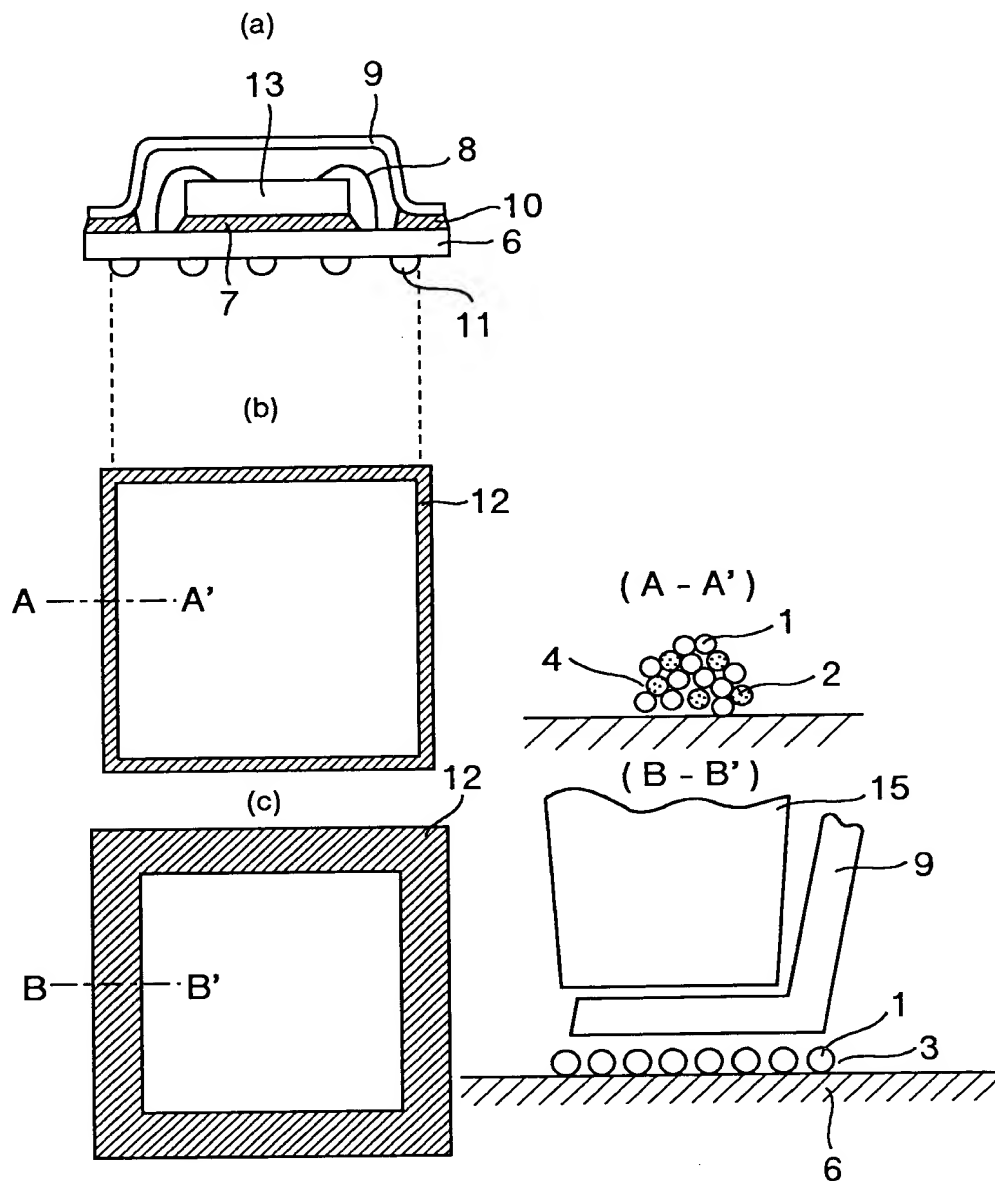
Title: Electronic Device

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FIG. 2



Applicant: Tasao Soga, et al.

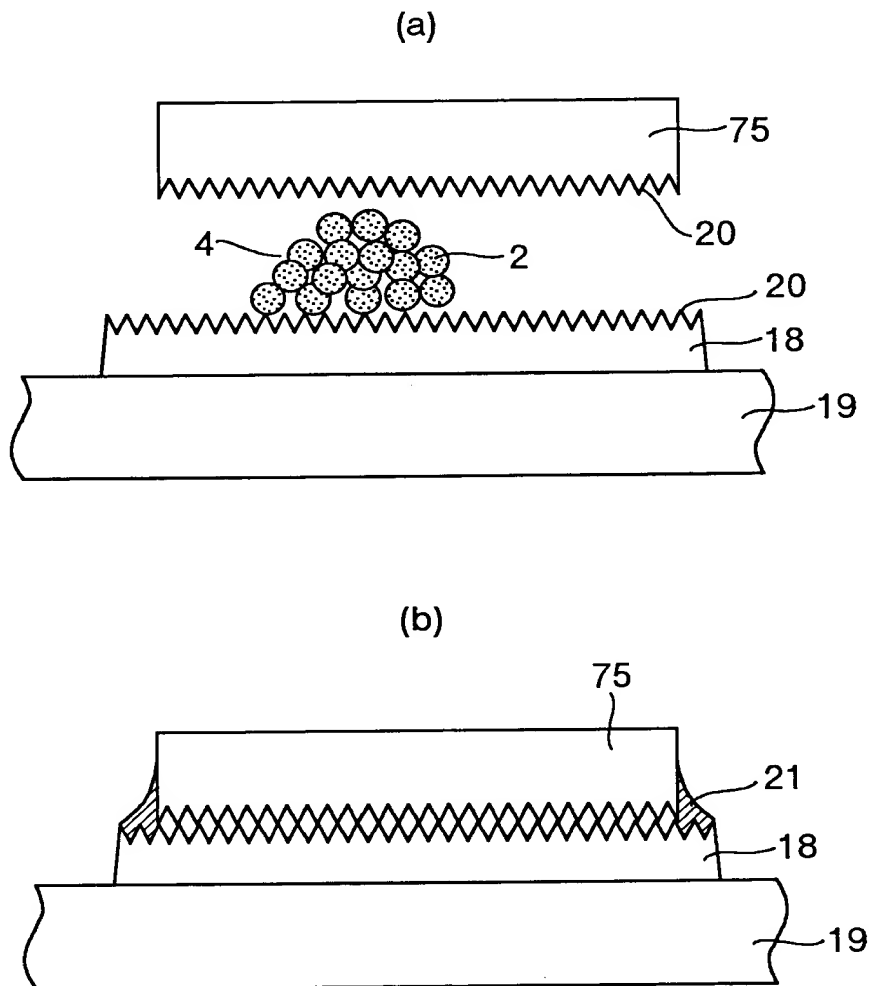
Title: Electronic Device

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FIG.3



Applicant: Tasao Soga, et al.

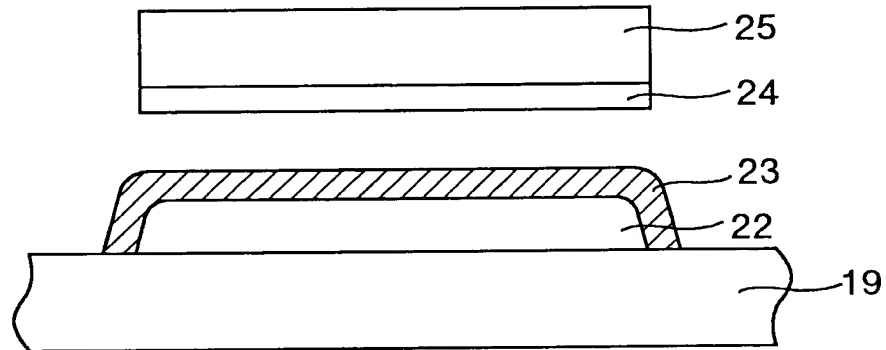
Title: Electronic Device

App. No. 09/880,773

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FIG.4



Applicant: Tasao Soga, et al.

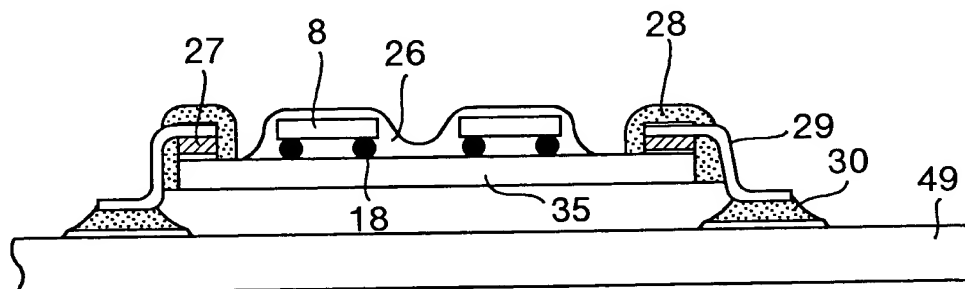
Title: Electronic Device

App. No. 09/880,773

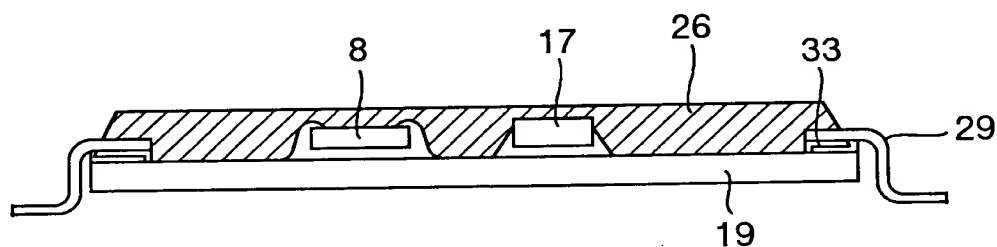
Atty Docket No. 16869S-027500

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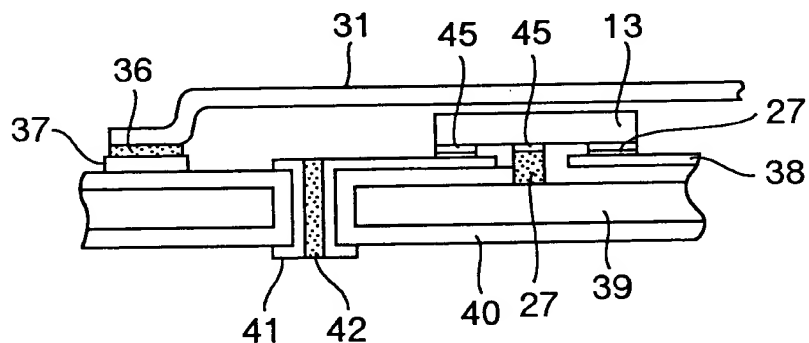
FIG. 5



(a)



(b)



(c)

Applicant: Tasao Soga, et al.

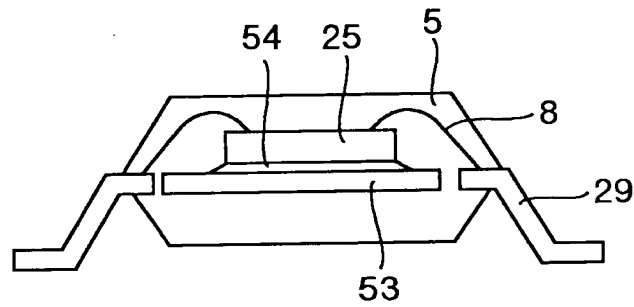
Title: Electronic Device

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FIG.6



Applicant: Tasao Soga, et al.

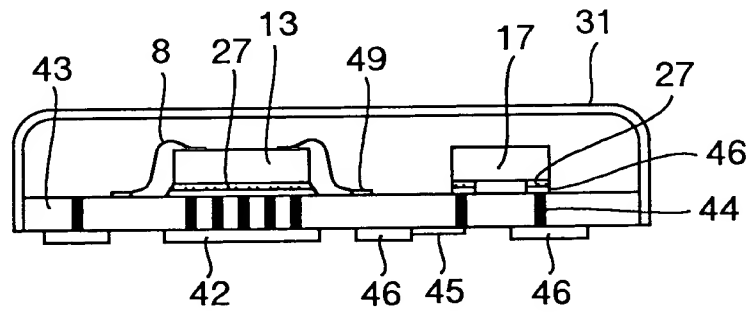
Title: Electronic Device

App. No. 09/880,773

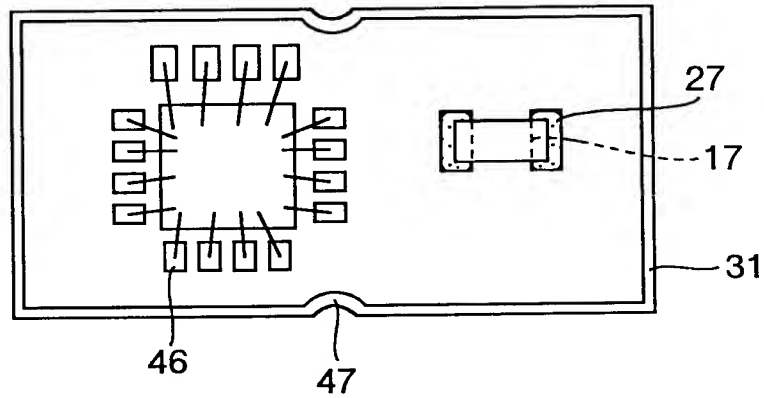
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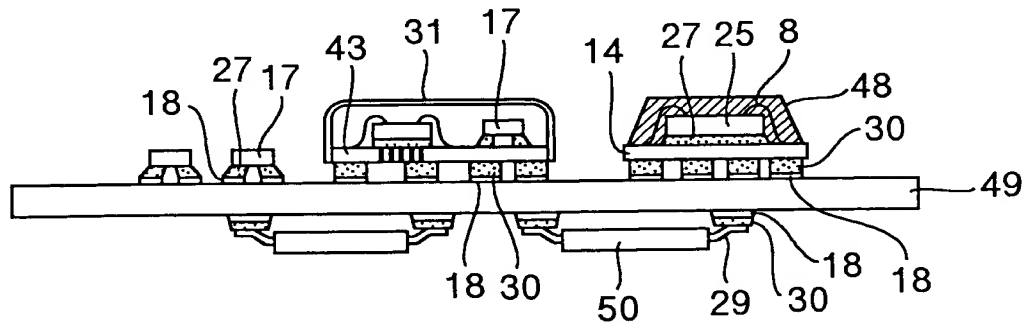
FIG. 7



(a)



(b)



(c)

Applicant: Tasao Soga, et al.

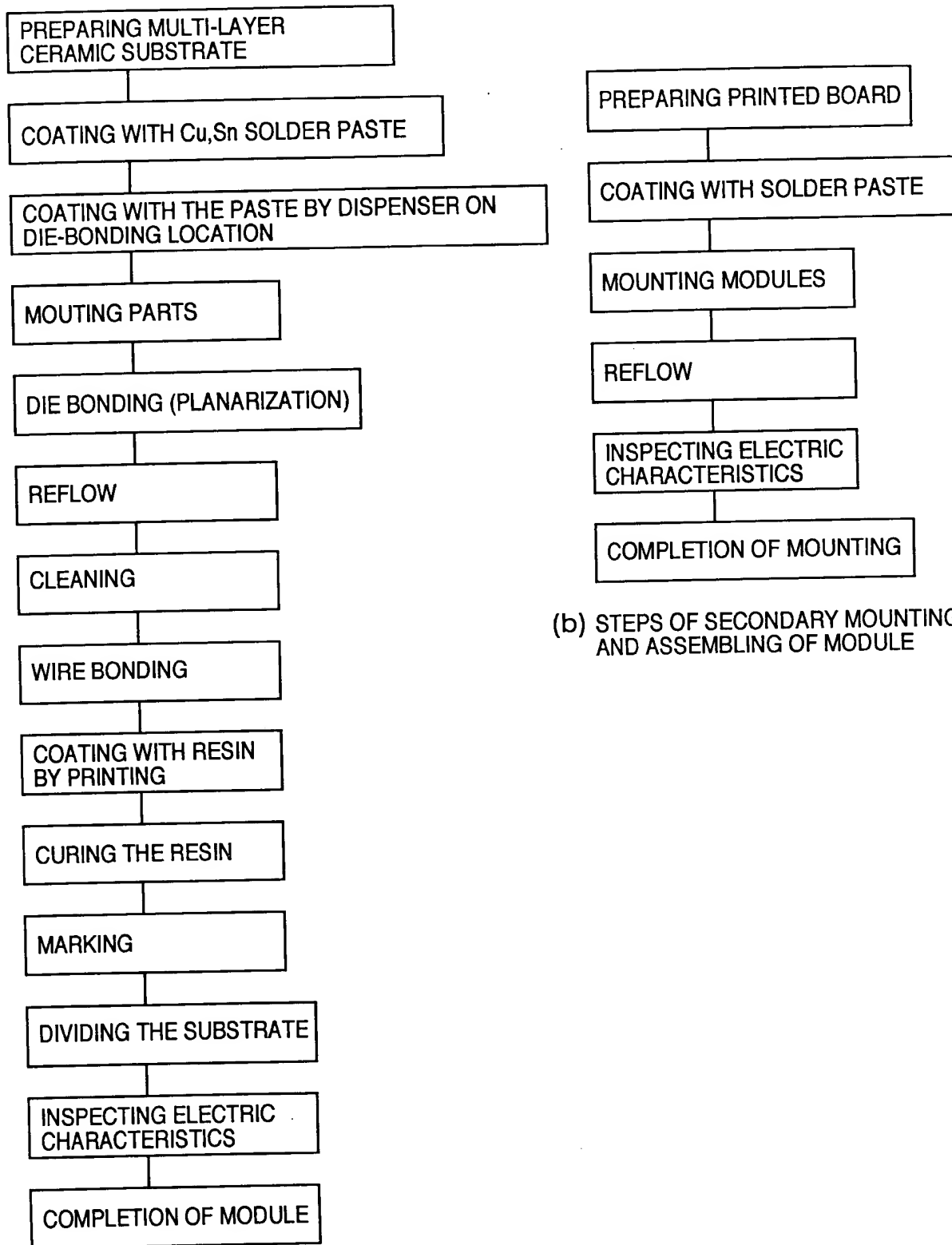
Title: Electronic Device

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FIG.8



(a) STEPS OF ASSEMBLING MODULE

(b) STEPS OF SECONDARY MOUNTING AND ASSEMBLING OF MODULE



Applicant: Tasao Soga, et al.

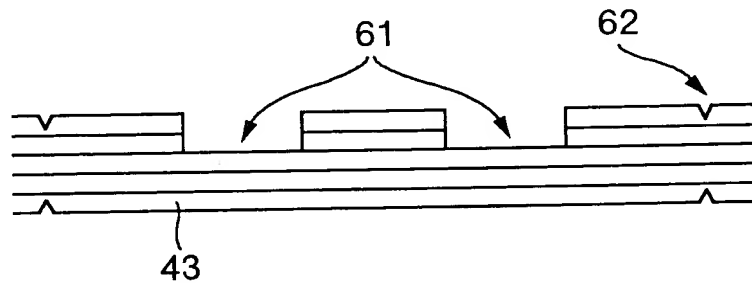
Title: Electronic Device

App. No. 09/880,773

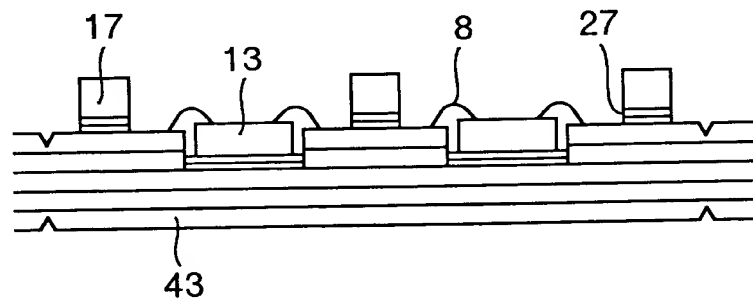
Atty Docket No. 16869S-02/500

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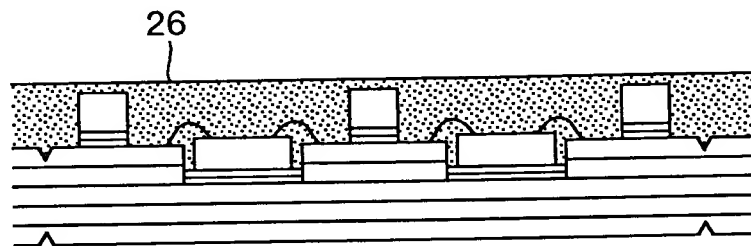
FIG. 9



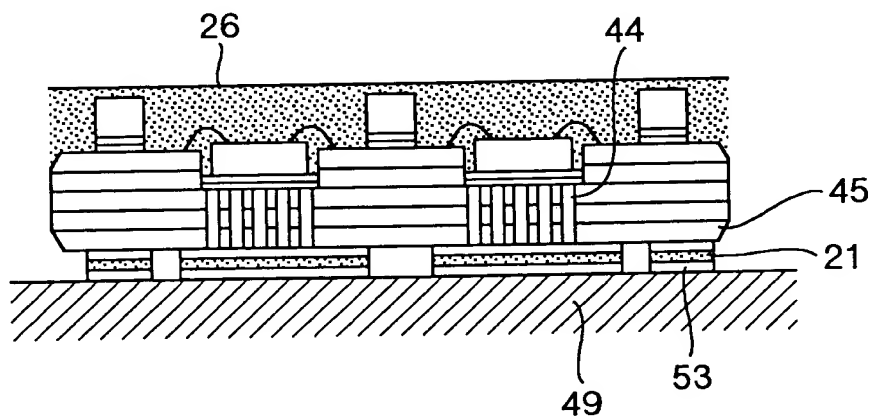
(a)



(b)



(c)



(d)

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FIG.10

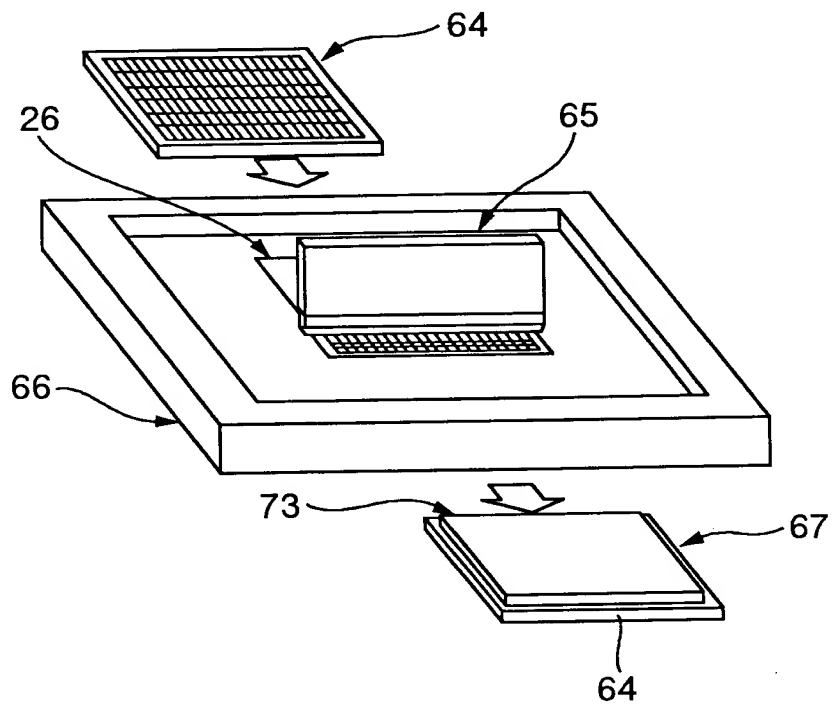


FIG.11

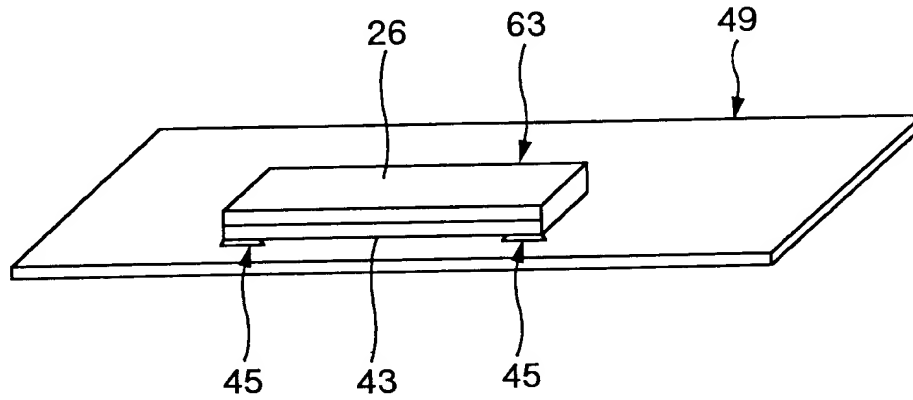
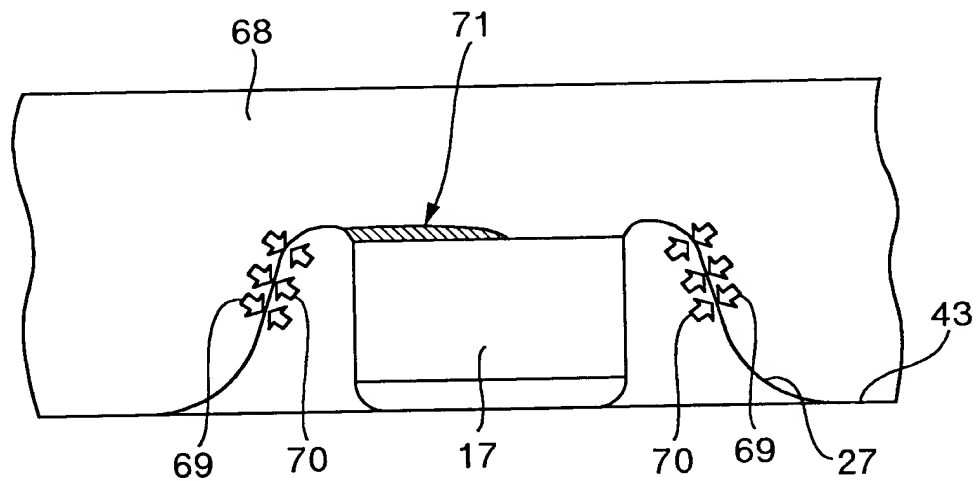
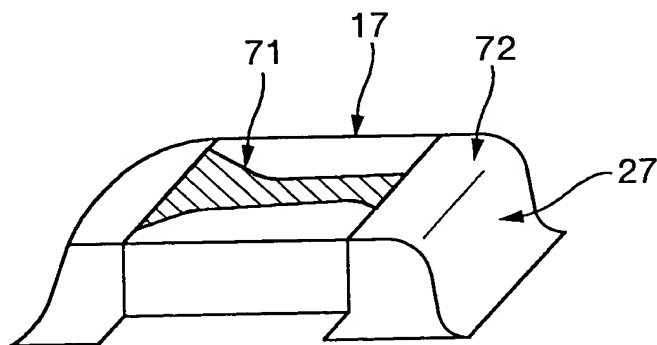


FIG.12



(a)



(b)

Applicant: Tasao Soga, et al.

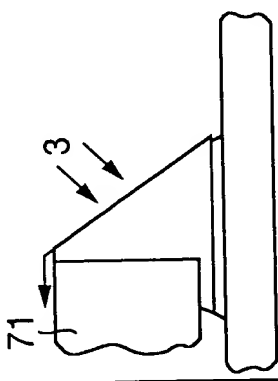
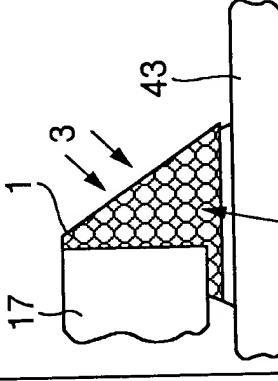
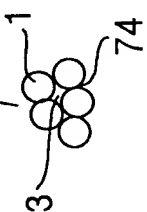
Title: Electronic Device

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FIG.13

|                                   | VOLUME EXPANSION (%) (RATIO) | YOUNG'S MODULUS REQUIRED IN RESIN                     | PHENOMENON   |   |
|-----------------------------------|------------------------------|---|--|---|
|                                   |                              |   |  |   |
| CONVENTIONAL TECHNIQUE (PB BASED) | 3.6<br>(2.6)                 | 200 Mpa ><br>at 180°C                                 | CREEP DEFORMATION OF LIQUID (INCLUDING SOLID PHASE) AT THE TIME OF REMELTING                       |    |
| THE INVENTION (Cu50/Sn50)         | 1.4*<br>(1)                  | 500 Mpa >*<br>at 180°C                                | JOINT IS EXPECTED THAT A BONDED PORTION DOES NOT MOVE BECAUSE Cu PARTICLES ARE FIXED TO EACH OTHER |   |
| ASSUMPTION                        | * 1/2 of THAT OF Sn          | * THE VALUE OF CONVENTIONAL TECHNIQUE ABOUT 2.5 TIMES |  |  |

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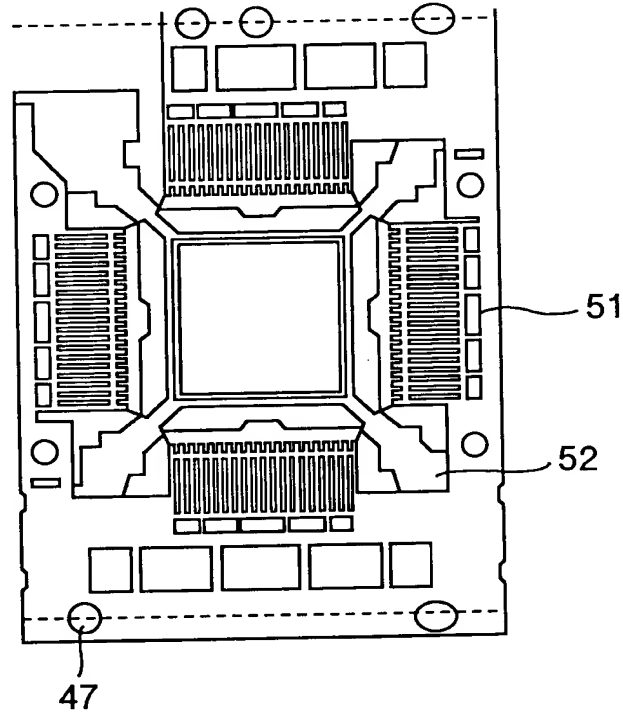
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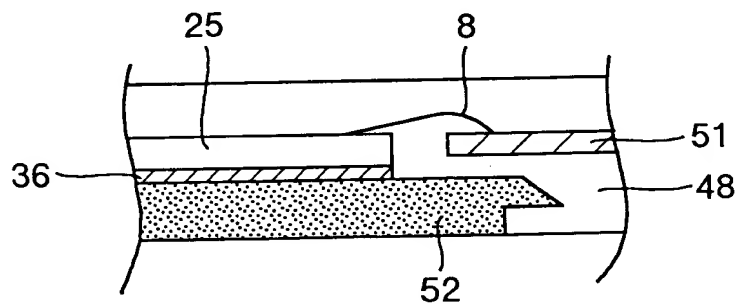
FIG. 14



(a)



(b)



(c)

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## FIG.15

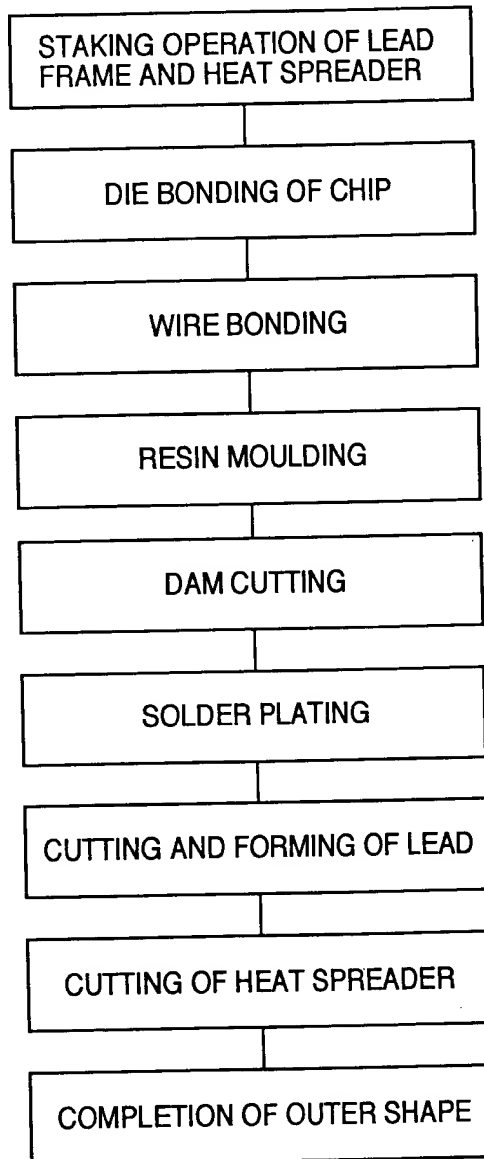


FIG.16

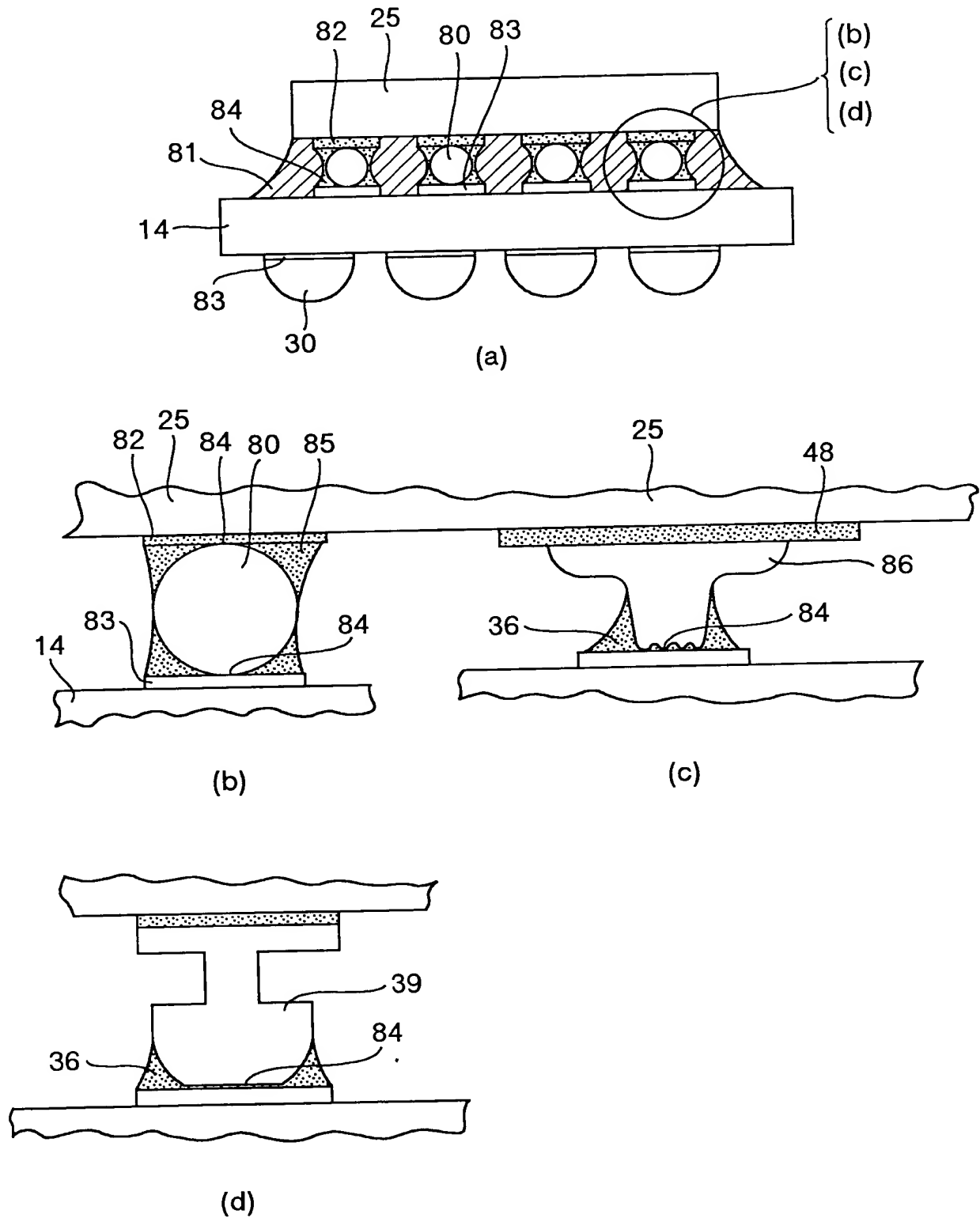
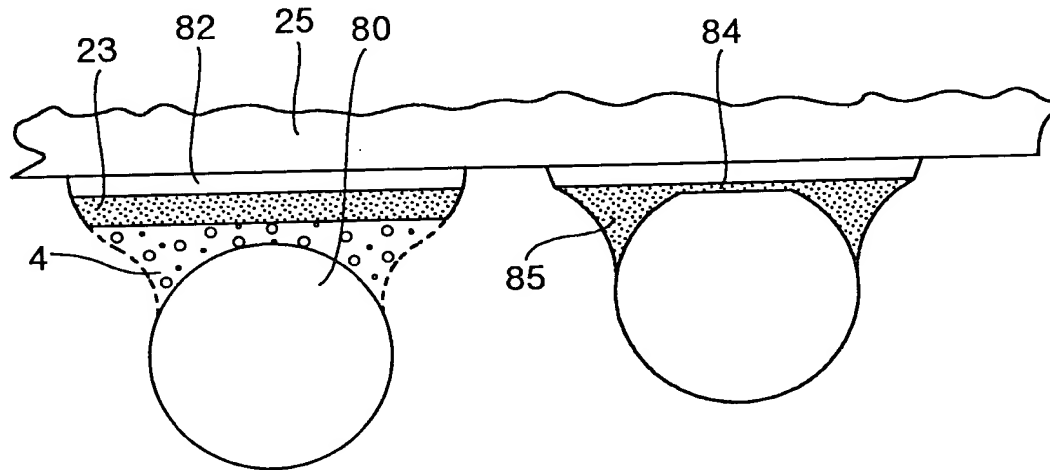
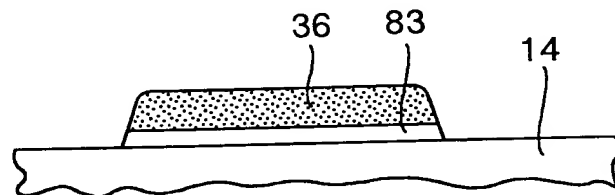




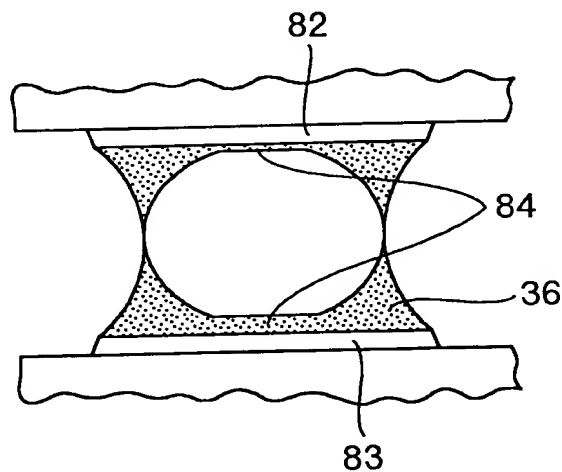
FIG.17



(a)

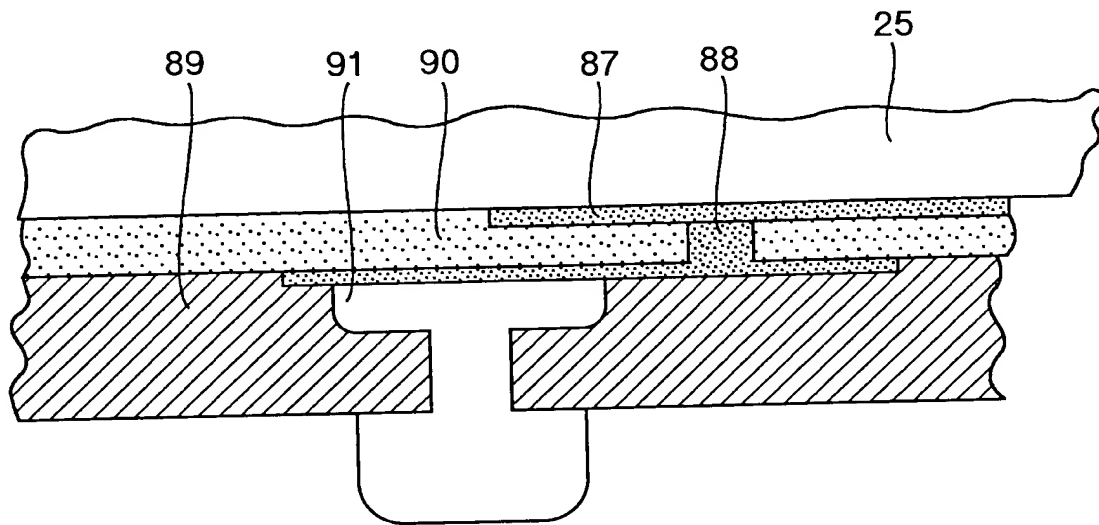


(b)

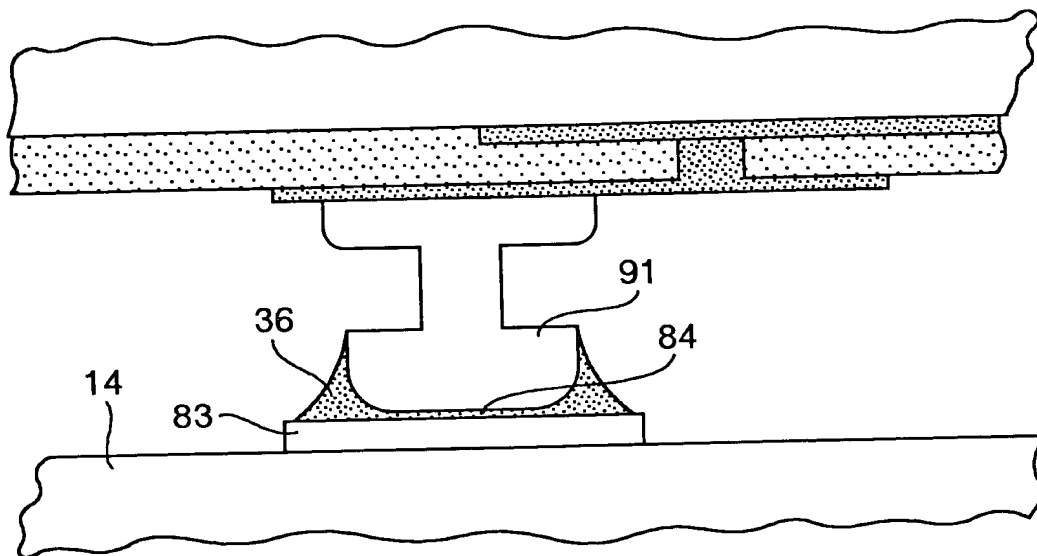


(c)

FIG.18



(a)



(b)

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FIG.19

| Sn / Cu           | EVALUATION<br>AND JUDGING | REASONS FOR JUDGING   |
|-------------------|---------------------------|---|
| 10 / 4            | ×                         | ↑   |
| 10 / 5            | ×                         | EXCESS OF Sn  |
| 10 / 7 ( 1.43 )   | △                         | <div> <div>PROPER RANGE</div> <div>PREFERRED RANGE</div> </div> |
| 10 / 8 ( 1.25 )   | △ ~ ○                     |   |
| 10 / 10           | ○                         |   |
| 10 / 12.5 ( 0.8 ) | ○                         |   |
| 10 / 15           | △ ~ ○                     |   |
| 10 / 16.7 ( 0.6 ) | △                         |   |
| 10 / 25           | ×                         | SHORT OF Sn   |
| 10 / 50           | ×                         | ↓   |
| 10 / 100          | ×                         | ↓   |

CRITERION FOR : ○ : PROPER  
JUDGING

△ : ALMOST PROPER

× : SHORT (ON EXCESS) OF Sn